

In re Patent Application of
RAYNOR
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In the Claims:

Claims 1-38 (Cancelled).

39. (New) A method of attaching a sensor and a housing to opposite sides of a mounting substrate, the sensor having a sensing face and comprising a sensing area and at least one signal output contact thereon, the mounting substrate having a circuitry face and at least one signal input contact thereon, the mounting substrate also having an opening therethrough, the method comprising:

positioning the sensing area over the opening so that the at least one signal output contact of the sensor contacts the at least one signal input contact of the mounting substrate; and

positioning the housing in contact with the mounting substrate so that the housing and the sensor are in alignment.

40. (New) A method according to Claim 39, wherein dimensions of the opening are at least equal to dimensions of the sensing area.

41. (New) A method according to Claim 39, wherein dimensions of the opening are at least equal to dimensions of the sensing face.

42. (New) A method according to Claim 39, wherein the mounting substrate further comprises circuitry and at least one bump bond thereon, the at least one bump bond being interposed between the at least one signal output contact of the sensor and the at least one signal input contact of the mounting substrate so that signals detected by the sensor are

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passed to the circuitry.

43. (New) A method according to Claim 42, wherein the at least bump bond comprises a plurality of bump bonds around a perimeter of the opening.

44. (New) A method according to Claim 42, wherein positioning the sensing area comprises pressing the sensor against the mounting substrate; and further comprising heating the at least one bump bond so that it melts to draw the sensor into alignment over the opening.

45. (New) A method according to Claim 39, wherein the sensor comprises at least one of a charge-coupled device and a CMOS image sensor.

46. (New) A method according to Claim 39, wherein the sensing area comprises an image sensing area.

47. (New) A method according to Claim 46, wherein the image sensing area comprises a photodiode array.

48. (New) A method according to Claim 39, wherein the sensor comprises a light sensitive sensor for use with a bio-optical system.

49. (New) A method according to Claim 39, wherein the mounting substrate comprises a printed circuit board.

50. (New) A method according to Claim 39, wherein the housing comprises a formation extending therefrom; and

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wherein positioning the housing comprises mating the formation with the opening in the mounting substrate.

51. (New) A method according to Claim 39, wherein the housing comprises projections extending therefrom; wherein the mounting substrate includes additional openings therethrough; and wherein positioning the housing comprises mating the projections with the additional openings in the mounting substrate.

52. (New) A method according to Claim 39, wherein the housing comprises a lens.

53. (New) A method according to Claim 52, wherein the lens is separable from the housing.

54. (New) A method according to Claims 52, wherein the lens is threadably attached to the housing.

55. (New) A method according to Claim 39, wherein the housing comprises a matter delivery system for delivering a bio-optical analyte to the sensor.

56. (New) A method according to Claim 55, where the matter delivery system further delivers a bio-optical reagent to the sensor.

57. (New) A method of attaching a sensor to a mounting substrate, the sensor having a sensing face comprising a sensing area and at least one signal output contact thereon, the mounting substrate having a circuitry

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face and at least one signal input contact thereon, the mounting substrate also having an opening therethrough, the method comprising:

positioning the sensing area over the opening so that the at least one signal output contact of the sensor contacts the at least one signal input contact of the mounting substrate.

58. (New) A method according to Claim 57, wherein dimensions of the opening are at least equal to dimensions of the sensing area.

59. (New) A method according to Claim 57, wherein the mounting substrate further comprises circuitry and at least one bump bond thereon, the at least one bump bond being interposed between the at least one signal output contact of the sensor and the at least one signal input contact of the mounting substrate so that signals detected by the sensor are passed to the circuitry.

60. (New) A method according to Claim 59, wherein the at least bump bond comprises a plurality of bump bonds around a perimeter of the opening.

61. (New) A method according to Claim 59, wherein positioning the sensing area comprises pressing the sensor against the mounting substrate; and further comprising heating the at least one bump bond so that it melts to draw the sensor into alignment over the opening.

62. (New) A method according to Claim 57, wherein

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the sensor comprises at least one of a charge-coupled device and a CMOS image sensor.

63. (New) A method according to Claim 57, wherein the sensing area comprises an image sensing area.

64. (New) A method according to Claim 57, wherein the sensor comprises a light sensitive sensor for use with a bio-optical system.

65. (New) A method according to Claim 57, wherein the mounting substrate comprises a printed circuit board.

66. (New) A sensor package comprising:
a mounting substrate having a circuitry face side and at least one signal input contact thereon, said mounting substrate also having an opening therethrough;
a sensor on the circuitry face side of said mounting substrate and having a sensing face comprising a sensing area and at least one signal output contact thereon, the sensing area being over the opening so that the at least one signal output contact contacts the at least one signal input contact of said mounting substrate; and
a housing on a back side of said mounting substrate opposite the circuitry face side and being aligned with said sensor.

67. (New) A sensor package according to Claim 66, wherein dimensions of the opening are at least equal to dimensions of the sensing area.

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68. (New) A sensor package according to Claim 66, wherein said mounting substrate comprises at least one bump bond; and wherein the at least one signal output contact and the at least one signal input contact are electrically connected via the at least one bump bond.

69. (New) A sensor package according to Claim 68, wherein the at least one bump bond comprises a plurality of bump bonds around a perimeter of the opening.

70. (New) A sensor package according to Claim 66, wherein said sensor comprises at least one of a charge-coupled device or and a CMOS image sensor.

71. (New) A sensor package according to Claim 66, wherein the sensing area comprises an image sensing area.

72. (New) A sensor package according to Claim 71, wherein said image sensing area comprises a photodiode array.

73. (New) A sensor package according to Claim 66, wherein said sensor comprises a light sensitive sensor for use with a bio-optical system.

74. (New) A sensor package according to Claim 66, wherein said mounting substrate comprises a printed circuit board.

75. (New) A sensor package according to Claim 66, wherein said mounting substrate includes additional openings therethrough; and wherein said housing comprises projections

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extending therefrom that are mated with the additional openings.

76. (New) A sensor package according to Claim 66, wherein said housing comprises a lens.

77. (New) A sensor package according to Claim 76, wherein said lens is separable from said housing.

78. (New) A sensor package according to Claim 77, wherein said lens is threadably attached to said housing.

79. (New) A sensor package according to Claim 66, wherein said housing comprises a matter delivery system for delivering a bio-optical analyte to said sensor.

80. (New) A sensor package according to Claim 79, wherein said matter delivery system also delivers a reagent to said sensor.